

STATE OF SOUTH CAROLINA

(Caption of Case)

Application of Duke Energy Carolinas, LLC for
Approval of Energy Efficiency Plan Including an
Energy Efficiency Rider and Portfolio of Energy
Efficiency Programs

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

COVER SHEET

DOCKET

NUMBER: 2007 - 358 - E

(Please type or print)

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DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition ☐ Request for item to be placed on Commission's Agenda expeditiously

☒ Other: Testimony of Thomas E. Skains and Frank Yoho on Behalf of Piedmont Natural Gas

INDUSTRY (Check one)	NATURE OF ACTION (Check all that apply)		
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<input type="checkbox"/> Electric/Gas	<input type="checkbox"/> Agreement	<input type="checkbox"/> Memorandum	<input type="checkbox"/> Request for Certificatio
<input type="checkbox"/> Electric/Telecommunications	<input type="checkbox"/> Answer	<input type="checkbox"/> Motion	<input type="checkbox"/> Request for Investigation
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<input type="checkbox"/> Gas	<input type="checkbox"/> Certificate	<input type="checkbox"/> Petition for Rulemaking	<input type="checkbox"/> Response
<input type="checkbox"/> Railroad	<input type="checkbox"/> Comments	<input type="checkbox"/> Petition for Rule to Show Cause	<input type="checkbox"/> Response to Discovery
<input type="checkbox"/> Sewer	<input type="checkbox"/> Complaint	<input type="checkbox"/> Petition to Intervene	<input type="checkbox"/> Return to Petition
<input type="checkbox"/> Telecommunications	<input type="checkbox"/> Consent Order	<input type="checkbox"/> Petition to Intervene Out of Time	<input type="checkbox"/> Stipulation
<input type="checkbox"/> Transportation	<input type="checkbox"/> Discovery	<input type="checkbox"/> Prefiled Testimony	<input type="checkbox"/> Subpoena
<input type="checkbox"/> Water	<input type="checkbox"/> Exhibit	<input type="checkbox"/> Promotion	<input type="checkbox"/> Tariff
<input type="checkbox"/> Water/Sewer	<input type="checkbox"/> Expedited Consideration	<input type="checkbox"/> Proposed Order	<input checked="" type="checkbox"/> Other: Testimony
<input type="checkbox"/> Administrative Matter	<input type="checkbox"/> Interconnection Agreement	<input type="checkbox"/> Protest	
<input type="checkbox"/> Other:	<input type="checkbox"/> Interconnection Amendment	<input type="checkbox"/> Publisher's Affidavit	
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January 17, 2008

VIA E-FILING AND UPS OVERNIGHT

Mr. Charles Terreni
Chief Clerk Administrator
Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, South Carolina 29210

Re: Docket No. 2007-358-E Application of Duke Energy Carolinas, LLC for Approval of Energy Efficiency Plan Including an Energy Efficiency Rider and Portfolio of Energy Efficiency Programs

Dear Mr. Terreni:

Enclosed please find an original and 2 copies of the *Testimony and Exhibit of Thomas E. Skains on Behalf of Piedmont Natural Gas Company, Inc.* and the *Testimony of Frank Yoho on Behalf of Piedmont Natural Gas Company, Inc.* in the docket shown above. Please accept the original and one copy for filing and return the additional "filed-stamped" copy to me in the enclosed self-addressed postage paid envelope.

Thank you for your assistance with this matter. If you have any questions about this filing you may reach me at the number shown above.

Sincerely,

s/ James H. Jeffries IV
James H. Jeffries IV

Enclosures

c: Jeremy C. Hodges
David Carpenter
All Parties of Record

Research Triangle, NC
Charleston, SC

**Before the
Public Service Commission of South Carolina**

Docket No. 2007-358-E

**Application of Duke Energy Carolinas, LLC for Approval of
Energy Efficiency Plan Including an Energy Efficiency Rider and
Portfolio of Energy Efficiency Programs**

**Testimony and Exhibit
of
Thomas E. Skains**

**On Behalf Of
Piedmont Natural Gas Company, Inc.**



January 17, 2008

1 **Q. Mr. Skains, please state your name and business address.**

2 A. My name is Thomas E. Skains. My business address is 4720 Piedmont
3 Row Drive, Charlotte, North Carolina.

4 **Q. By whom and in what capacity are you employed?**

5 A. I am Chairman, President and Chief Executive Officer of Piedmont
6 Natural Gas Company (Piedmont).

7 **Q. Please describe your educational and professional background.**

8 A. I graduated from Sam Houston State University in 1978 with a
9 Bachelor's Degree in Business Administration. In 1981, I received a
10 Doctor of Jurisprudence Degree from the University of Houston Law
11 School, and I was admitted to the State Bar of Texas. I joined the
12 legal department of Transcontinental Gas Pipe Line Corporation
13 (Transco) in 1981 and practiced law in the areas of natural gas supply,
14 rate and federal energy regulatory matters until 1986. In 1986, I was
15 elected a Vice President of Transco and was responsible for marketing,
16 transportation and customer services. I was promoted to Senior Vice
17 President in 1989 and was responsible for the marketing and
18 administration of Transco's transportation and storage services,
19 including project development activities, until I left Transco in April
20 1995 to join Piedmont as Senior Vice President - Gas Supply. In July
21 2000, I was named Senior Vice President - Marketing and Supply
22 Services. In February 2002, I was named President and Chief
23 Operating Officer. In February 2003, I was named President and

1 Chief Executive Officer. In December 2003, I was elected Chairman,
2 President and Chief Executive Officer.

3 **Q. Mr. Skains, have you previously testified before this Commission**
4 **or any other regulatory authority?**

5 **A.** Yes. I have presented testimony and appeared as a witness on
6 numerous occasions before this Commission, the North Carolina
7 Utilities Commission, the Tennessee Regulatory Authority, and the
8 Federal Energy Regulatory Commission.

9 **Q. Do you hold any positions in natural gas trade associations?**

10 **A.** Yes. I serve as First Vice Chairman of the Board of Directors of the
11 American Gas Association (AGA). I also serve on AGA's Executive
12 Committee and Chair its Strategic Planning Committee and Demand
13 Task Force. In 2009, I will serve as AGA's Chairman. I have also
14 served as Chairman of the Southern Gas Association, and I am a
15 former Board member of the Southeastern Gas Association (now part
16 of the Southern Gas Association) and the Natural Gas Transportation
17 Association (now known as the National Energy Services
18 Association).

19 **Q. What is the purpose of your testimony in this proceeding?**

20 **A.** The purpose of my testimony is to set forth Piedmont's position, from
21 a policy perspective, on the energy efficiency, cost recovery and
22 incentive rate design concepts incorporated into Duke Energy
23 Carolinas, LLC's (Duke's) proposed Save-A-Watt plan (the Plan). I

1 will also address the competitive implications raised by Duke's Plan
2 for the South Carolina retail energy markets under the jurisdiction of
3 this Commission.

4 **Q. Can you briefly describe your testimony?**

5 A. My testimony is supportive of the proactive attempt by Duke to
6 address energy efficiency as a means of reducing demand growth,
7 avoiding the costs of incremental power generation facilities, lowering
8 energy consumption, and lowering greenhouse gas (GHG) emissions. I
9 am also supportive of many of the concepts underlying Duke's Plan,
10 including the recovery of energy efficiency program costs and the
11 incentive rate structure provided for under the Plan rider. As the
12 President and CEO of a competing energy provider, however, I do
13 have serious concerns with the "electric only" focus of some of Duke's
14 energy efficiency programs under the Plan. A single fuel focus, with
15 economic incentives for electric appliances, could fundamentally skew
16 the competitive playing field between gas and electricity in the water
17 and space heating markets in South Carolina. It is also likely to
18 increase electric demand rather than reduce it, lead to the unnecessary
19 construction of electric power generation facilities, and negatively
20 impact overall energy efficiency and GHG emissions.

21 In Piedmont's view, matters involving energy efficiency and GHG
22 emissions should be evaluated on a multi-fuel basis taking into
23 consideration the total fuel cycle efficiencies of competing energy

1 applications, particularly in regulated utility markets. This broader
2 approach is consistent with the public interest because it ensures that
3 any programs adopted by this Commission achieve the overall goals of
4 lowering electric demand, ensuring the most efficient utilization of
5 alternative energy infrastructure and resources, lowering GHG
6 emissions, and lowering overall costs to energy consumers by avoiding
7 the costs of incremental power generation and unnecessary energy
8 consumption. Failure to analyze Duke's Plan on a multi-fuel, total
9 fuel cycle basis creates substantial risk that the programs could
10 actually increase electric demand and the need for additional power
11 generation facilities, promote less efficient consumption of energy
12 (particularly in the use of natural gas for power generation), and
13 increase GHG emissions. Finally, as a procedural recommendation, I
14 propose that this Commission direct Duke, Piedmont and the ORS to
15 engage in a collaborative effort to ensure that the portfolio of energy
16 efficiency programs under the Plan is designed to achieve the greatest
17 overall energy efficiency, cost savings and GHG emission impacts for
18 the benefit of the citizens of South Carolina.

19 **Q. Please describe your gas markets in South Carolina.**

20 A. Piedmont serves approximately 130,000 residential, commercial,
21 industrial and power generation customers in the upstate area of South
22 Carolina. Our largest markets are in and around the cities of
23 Anderson, Greenville, Spartanburg and Gaffney.

1 **Q. Why is energy efficiency important?**

2 A. To meet the energy and environmental goals of this nation and the
3 State of South Carolina, we must prioritize the use of our cleanest
4 sources of energy and encourage the wise and efficient use of all forms
5 of energy. I agree with Duke CEO Jim Rogers that we must seek to
6 become the most energy efficient economy in the world. We cannot
7 do that, however, by evaluating energy efficiency on a single fuel basis
8 or by just considering the efficiency of end use appliances. Instead,
9 real energy efficiency must be measured from the source of energy
10 production to the site of its use (source to site efficiency) and through
11 the appliances that consume it – otherwise known as total fuel cycle
12 efficiency. Further, energy efficiency must also be evaluated in the
13 larger context of competing energy sources capable of serving the
14 same needs rather than on a single fuel basis alone. This is particularly
15 true where the competing energy providers are regulated utilities
16 subject to this Commission’s jurisdiction and to the legal obligation to
17 operate in a manner consistent with the public interest.

18 **Q. Can you please explain the concept of source-to-site and total fuel**
19 **cycle efficiency as it relates to the use of natural gas?**

20 A. Yes. The best and most efficient use of natural gas, the cleanest
21 burning of all fossil fuels, is the direct use of the product by energy
22 consumers in their homes and businesses. This is far more efficient
23 than using natural gas to generate electricity to deliver to those same

1 energy consumers. Natural gas retains approximately 90% of its
2 energy value through the source to site delivery to energy consumers,
3 whereas the process of converting natural gas to electricity for delivery
4 to energy consumers retains less than 30% of its energy value on a
5 source-to-site basis. Accordingly, natural gas delivered to energy
6 consumers for direct use is more efficient, requires less overall
7 consumption of energy and related energy infrastructure, and lowers
8 GHG emissions compared to using natural gas for power generation to
9 serve the same energy demand in the form of electricity.

10 **Q. How does this relate to Duke's Plan?**

11 A. Because Duke's Plan focuses solely on electricity as an energy source
12 and provides economic incentives for electric appliances and
13 equipment where natural gas alternatives exist, it could actually lead to
14 a competitive market advantage and increase the usage of electricity
15 for applications that could be more efficiently served by natural gas.
16 In my view, it is contrary to the public interest to promote the usage of
17 electricity for end use applications where the direct use of natural gas
18 is a more efficient and lower emitting alternative fuel source. The
19 public interest should require the exact opposite.

20 **Q. Do you know whether Duke is proposing to construct, own and**
21 **operate more natural gas fired power generation facilities to serve**
22 **the growing demand for electricity in its Carolina market area?**

1 A. That is my understanding. There has been much discussion not only
2 by Duke, but the U.S. electric utility industry in general, about the
3 need to “dash to gas” for their incremental power generation capacity
4 needs. While I certainly understand the realities of this path of least
5 resistance in light of the complexities of building new coal and nuclear
6 plants and the inherent limitations of renewable generation, building
7 new gas fired power generation is an expensive proposition and this is
8 not the best and most efficient use of our product. Any regulatory plan
9 or proposal that would increase the demand by retail energy consumers
10 for electricity over natural gas and then rely on natural gas fired power
11 generation to meet that demand growth is not in the public interest.

12 **Q. Why is it contrary to the public interest?**

13 A. As I explained earlier, it takes more natural gas to deliver equivalent
14 energy to the retail consumer in the form of electricity, thus wasting
15 natural gas energy and increasing GHG emissions. In addition, the
16 growing use of natural gas for electric power generation has increased
17 and continues to increase the overall demand for natural gas supplies
18 and infrastructure in this country and puts substantial upward pressure
19 on the wholesale market price of natural gas contrary to the best
20 interests of both natural gas and electric consumers. Finally, it is far
21 more expensive to build new gas-fired power generation facilities to
22 meet electric demand growth than it is to build natural gas facilities to
23 meet the same energy demand.

1 **Q. What would you say to those who assert that energy consumers**
2 **should choose whatever energy products they want based on the**
3 **relative price of alternative energy products?**

4 A. I am in favor of market competition in energy markets just like I am
5 for goods and services in general. But we should not adopt and
6 implement policies for regulated utility energy providers that skew the
7 competitive playing field to give one energy product an advantage
8 over another, especially when it leads to inefficiency in energy and
9 natural gas consumption, cost increases to consumers (in both retail
10 and wholesale energy infrastructure and commodity costs) and
11 increased GHG emissions. In addition, I would add that true and
12 accurate market price signals are not being sent to new electric
13 consumers in growth markets such as Duke's. Under traditional
14 regulatory rate regulation, the high cost of new power generation
15 assets (natural gas or otherwise) is rolled into the embedded fleet of
16 old coal, nuclear and hydro generation assets to charge average fuel
17 rates to all electric customers. New electric customers don't pay the
18 incremental cost of generating new electricity. With the deregulation
19 of natural gas commodity prices, all natural gas customers pay the
20 wholesale commodity market price of natural gas at the margin – even
21 as that price increases because of the growing demand for natural gas
22 to fuel electric power generation. I say this to make the point that
23 regulatory policies and rate structures certainly influence the

1 competition for, and prices charged to, retail natural gas and electric
2 energy consumers.

3 **Q. Mr. Skains, do you oppose the use of natural gas to generate**
4 **electricity?**

5 A. No, I do not. But for the reasons stated above, I do believe that energy
6 policy makers, regulators and energy consumers should prioritize
7 natural gas for its best and most efficient use – the direct use in homes
8 and businesses. Natural gas for power generation should be a
9 secondary and subordinate use and we should fashion regulatory plans
10 and programs accordingly.

11 **Q. Mr. Skains, are the views expressed in your testimony on energy**
12 **efficiency and the direct use of natural gas shared by other energy**
13 **industry leaders?**

14 A. Yes. My views are consistent with the direct use of natural gas,
15 energy efficiency, natural gas for electricity generation and total
16 energy efficiency principles adopted by the AGA Demand Task Force,
17 the AGA Government Relations Policy Committee, and the AGA
18 Board of Directors on April 30, 2005, a copy of which is attached to
19 my testimony as Exhibit ____ (TES-1). The AGA Board, Board
20 Committees, and Board Task Forces are comprised of CEOs from
21 natural gas and combination gas and electric utility companies from
22 across the United States. I might add that Duke CEO Jim Rogers was
23 a member of the AGA Board at the time the principles were adopted.

1 **Q. Do you have any other concerns regarding Duke's proposed**
2 **energy efficiency programs?**

3 A. Yes. Any time a regulated utility proposes an economic incentive for
4 a particular form of energy, that utility's competitors and this
5 Commission should be concerned. Because it influences the decision
6 to purchase end-use equipment, which typically has an extended
7 operational life, any incentive that drives customers to choose one fuel
8 over another should be carefully scrutinized. The core of our concern
9 on this point is that Duke's proposed electric incentive programs may,
10 directly or indirectly, influence long term fuel choices by end-use
11 customers in an anti-competitive manner.

12 **Q. Are there concepts in Duke's proposal that you support?**

13 A. Yes. Piedmont supports, and Duke is to be commended for, the
14 forward-thinking proposal underlying the proposed energy efficiency
15 rider. This type of cost recovery and incentive rate structure
16 importantly aligns customer and utility interests. The Commission
17 should be receptive to these types of proposals by regulated utilities
18 that address the need for energy efficiency in the marketplace. It is
19 good public policy to provide incentives for utilities to promote energy
20 efficiency and conservation that may lead to a reduction in demand for
21 their product.

22 **Q. Do you believe that Duke's programs should be rejected?**

1 A. No, Duke's programs should be evaluated in the broader context I
2 have described and should be modified, where appropriate, to avoid
3 undesirable consequences that are contrary to the public interest. As
4 Mr. Yoho suggests in his testimony, if Duke proposes to implement a
5 specific energy efficiency program that could result in the
6 displacement of natural gas in one or more applications, then Duke
7 should be required to prove to the Commission that such displacement
8 promotes overall energy efficiency (as distinguished from electric
9 efficiency) and does not contribute to an unnecessary increase in
10 energy demand or the need to construct additional electric generation
11 facilities.

12 **Q. Do you have any other proposals for the Commission relating to**
13 **Duke's Program?**

14 A. Yes, I do. In his testimony, Duke CEO Jim Rogers has articulated a
15 real and compelling vision and interest in the promotion of energy
16 efficiency. If we take him at his word, and I do, Piedmont and Duke
17 should be able to reach agreement on modifications to the specific
18 energy efficiency programs that are of concern to Piedmont in
19 relatively short order consistent with my testimony above. In order to
20 achieve such a result, I recommend that this Commission direct Duke,
21 Piedmont and the ORS to initiate a collaborative process. This effort
22 should be conducted over a period of a few months in order to allow
23 the parties to address issues raised in my testimony and the testimony

1 of Mr. Yoho. In the interim, we have no objection to the
2 implementation, without delay, of those components of Duke's Plan
3 which do not raise the issues discussed in my testimony.

4 **Q. Does this conclude your testimony?**

5 **A.** Yes it does.

EXHIBIT __ (TES-1)

AGA Demand Task Force: Positions

(As Adopted by the AGA Government Relations Policy Committee
and the AGA Board of Directors)

April 30, 2005

The American Gas Association (AGA) believes that current natural gas market conditions are having serious negative impacts on natural gas consumers and the economy. In order to alleviate this situation, aggressive and immediate actions must be taken with respect to natural gas supply and demand. The demand-side measures discussed below in no way reduce the need for strong supply-side actions. While energy efficiency measures are necessary and should help cushion the impact of rising natural gas prices, they are not sufficient and must be coupled with aggressive efforts to increase natural gas production and supplies.

1. Direct Use of Natural Gas. AGA advocates the direct use of natural gas.¹ Direct use of natural gas offers the highest energy efficiency and therefore acts to reduce overall natural gas demand and reduce the price pressure on wholesale gas markets.

2. Energy Efficiency. AGA members believe in energy efficiency. Increasing energy efficiency has become the norm in the natural gas industry. Both residential and commercial use-per-customer have fallen at a rate of roughly 1 percent per year since 1980 (weather adjusted). Because greater efficiency results in lower bills, thus benefiting customers, utilities have been for energy efficiency. But given the adverse effect of reduced consumption on earned returns, which are almost always throughput based, more can be done. Public utility commissions should look favorably upon rate structures proposed by gas utilities that align the interests of the customer and utility companies that serve them behind the objective of energy efficiency. Such rate structures may benefit customers in two ways: 1) by leading to reduced bills through reduced natural gas consumption; and 2) by lowering the commodity cost of natural gas as a result of reduced demand.

3. Natural Gas for Electricity Generation. Roughly 90 percent of the electricity generating capacity added over the past five years is fired by natural gas. Further, two-thirds of the gas demand growth projected between now and 2020 is attributable to the generation of electricity. These developments mark a significant change in the historical electricity generation market. This near total reliance on a single fuel for new generation, particularly in light of severe

¹ Direct use of natural gas is the best use of natural gas. For example, using natural gas to heat a home's water supply is a more efficient use of energy than using natural gas to generate electricity, which then flows over long power lines to a home to heat its water.

constraints to the addition of new gas supplies, has had, and will continue to have, severe repercussions in the natural gas market. However, existing and contemplated environmental regulations and restrictions, public opposition to nuclear power, the stock of generating equipment in-place, and various other economic factors make it extremely difficult for some generators to move away from gas. Many electricity generators would welcome a reduction in their dependence on gas.

We believe that electricity generators should be encouraged to seek greater fuel diversity and that natural gas utilities, electricity generators and consumers would benefit from a more diverse electricity generating mix. Electricity generators should be allowed to, encouraged to, and provided incentives to, use sources other than natural gas for electricity generation. Legislative and/or regulatory support should be provided for non-gas generating options, including but not limited to:

- Integrated gasification /combined cycle technology (“coal gasification”)
- Clean coal technologies
- Nuclear power
- Renewable generating sources

Obstacles preventing electricity generators from making fuel choices other than natural gas need to be removed. These include but are not limited to:

- Restrictions to new base load generation and new transmission lines that block needed development
- Long lead times for planning and permitting new electricity generation and transmission
- Lack of sufficient research, development and deployment for integrated gasification/combined cycle technology (“coal gasification”) and clean coal technologies

4. Dual Fuel Capability for Natural Gas Electricity Generation Units. Many of the combined cycle and combustion turbine units installed in recent years were designed, or permitted by environmental agencies, to operate only on natural gas. This is in contrast to the historical norm in the industry of dual fuel capability that allowed plant operators to switch from gas to oil (or coal) when market conditions so dictated. The reduction in switchability has produced less robust and responsive markets – to the detriment of natural gas consumers. Dual fuel capability should be encouraged by regulators, including financial incentives to convert, and environmental permits should be modified to permit consumption of fuels other than gas, particularly in periods of peak demand.

5. Natural Gas-Fired Boilers. Generating electricity with natural gas-fired boilers requires roughly twice as much gas input per megawatt hour as does generation with high efficiency combined cycle units. Nearly half of the gas-fired generating capacity on-line today is boiler capacity, as is about 30 percent of the capacity projected to be on line in 2020. Electricity generators should be encouraged and provided financial incentives and/or regulatory support to upgrade existing boilers to high efficiency combined cycle units (with dual fuel capability whenever possible) without subjecting them to onerous 'new source' standards. Also any natural gas boilers that are not converted to high efficiency combined cycle units should likewise be encouraged to operate with dual fuel capability.

6. Total Energy Efficiency. We strongly support the concept of "total energy efficiency" which recognizes that energy efficiency (and environmental impacts related to energy consumption) is most meaningful when all impacts from the point of energy production through energy consumption are considered. For example, an electric water heater may have a higher appliance efficiency rating (e.g., 92%) than a gas water heater (e.g., 59%), yet when the entire energy chain is considered, the gas unit requires less than half the energy input of the electric unit, and it produces less than one-third the CO₂, one-tenth the NO_x and virtually no SO₂. On this basis, the electric appliance would have an efficiency rating of 46% or less. Federal and state energy efficiency standards and related energy efficiency programs must be founded on the basis of total energy efficiency in addition to end-use appliance efficiency.

Background – Existing AGA Natural Gas Demand Positions and Activities

I. Historical AGA Positions on Natural Gas Demand:

1. For many decades AGA has supported the increased use of natural gas for all markets: residential, commercial, industrial, natural gas vehicles, co-burning with coal for electricity generation, and gas-fired electricity generation.
2. In the 1980's AGA sought repeal of the 1978 Powerplant and Industrial Fuel Use Act, which limited the use of natural gas for electricity generation and some industrial applications.
3. Following repeal of much of the Fuel Use Act in 1987, AGA continued to advocate for use of natural gas in high efficiency combined cycle applications, co-fired with coal to improve the environmental performance of coal, and as a peaking fuel for summer electricity generation.
4. In 1996 AGA stopped advocating on behalf of pipelines and became an advocate solely for gas distribution companies. At that time AGA staff began to shift its focus away from gas-fired electricity generation.
5. In its 2000 study *Fueling the Future*, AGA recognized the projected growth of gas-fired electricity generation but did not necessarily advocate that growth. In fact, this study pointed out the potential benefits of relying more

on coal, nuclear, and renewable energy sources in place of gas for central station electricity generation while relying more on gas for high efficiency end-use applications and distributed generation. This approach, recognizing the projected growth of gas-fired electricity generation but not advocating for that growth, has characterized AGA's advocacy, analysis and public communication since that time.

6. In 2003, AGA focused on direct use of natural gas as the best use of natural gas. AGA staff has consistently expressed that position since that time. AGA staff also has supported fuel diversity for electricity generation for many years.
7. In 2004, the AGA Strategic Planning Committee and other groups discussed a possible AGA position on natural gas-fired electricity generation. Some members wanted AGA to oppose the use of natural gas for electricity generation and others did not.
8. At the February 14, 2005 meeting of the AGA Government Relations Policy Committee, the GRPC endorsed three National Petroleum Council recommendations regarding gas-fired electricity generation. These recommendations endorsed, but did not mandate, dual-fuel capability for gas-fired electricity generation.
9. Also at the February 14, 2005 GRPC meeting the GRPC endorsed fuel diversity for electricity generation and supported measures that would reduce the demand for gas-fired electricity generation and increase the demand for other alternatives. These measures included support for coal gasification to provide a relatively clean alternative to gas-fired electricity generation. It was suggested that AGA not take the lead in efforts to support measures like coal gasification for electricity generation but would express support when asked.

II. AGA Positions on Energy Efficiency, Conservation, and Appliance and Building Codes and Standards

1. AGA has long advocated for its gas distribution members before regional and national standards setting bodies that establish appliance and building codes (e.g., Department of Energy, International Code Council, the National Fire Protection Association, the International Association of Plumbing and Mechanical Officials, the American Society of Heating, Refrigeration, and Air Conditioning Engineers, CSA International, etc.). AGA's focus is to ensure that these standards are safe, practical and do not discriminate against, or adversely impact, the increased use of natural gas in homes and businesses.
2. In advocacy before these standards-setting bodies and before Congress and the Department of Energy, AGA opposes minimum appliance efficiency standards and building requirements that do not make economic sense or which discriminate against the direct use of natural gas in favor of less efficient fuels like electricity.

3. AGA has worked to ensure that energy efficiency provisions in all the recent energy bills do not discriminate against natural gas and do not provide incentives that would favor all-electric homes.
4. AGA has sought regulatory and legislative measures that would require that energy efficiency be measured on a full fuel cycle (source) basis. In recent years we have succeeded in having this requirement included in one Presidential Executive Order and the recent energy bills have required that the National Academy of Sciences prepare a study on this issue. To date we have been unsuccessful in introducing legislation that would require the use of source-based energy efficiency measurement.
5. AGA develops and provides to member companies consumer materials and messages encouraging energy efficiency, conservation and the wise use of natural gas.
6. In its 2004 Joint Statement with the Natural Resources Defense Council AGA supported PUC consideration of conservation tariffs and similar decoupling mechanisms only when proposed by gas distribution companies.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the attached *Testimony and Exhibit of Thomas E. Skains on Behalf of Piedmont Natural Gas Company, Inc.* is being served this date via email and UPS Overnight (5 copies) upon:

Nanette S. Edwards
Office of Regulatory Staff
1441 Main Street
Suite 300
Columbia, South Carolina 29201
nsedwar@regstaff.sc.gov

And that a copy of the attached *Testimony and Exhibit of Thomas E. Skains on Behalf of Piedmont Natural Gas Company, Inc.* is being served this date via email and U.S. Mail upon:

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This the 17th day of January, 2008.

s/ James H. Jeffries IV
James H. Jeffries IV

**Before the
Public Service Commission of South Carolina**

Docket No. 2007-358-E

**Application of Duke Energy Carolinas, LLC for Approval of
Energy Efficiency Plan Including an Energy Efficiency Rider and
Portfolio of Energy Efficiency Programs**

**Testimony
of
Frank Yoho**

**On Behalf Of
Piedmont Natural Gas Company, Inc.**



January 17, 2008

1 **Q. Please state your name and your business address.**

2 A. My name is Frank Yoho. My business address is 4720 Piedmont Row
3 Drive, Charlotte, North Carolina.

4 **Q. By whom and in what capacity are you employed?**

5 A. I am employed by Piedmont Natural Gas Company, Inc., ("Piedmont") as
6 Senior Vice President – Commercial Operations.

7 **Q. Please describe your educational and professional background.**

8 A. I have a Bachelor of Arts degree in economics from Washington &
9 Jefferson College and a Masters of Business Administration degree from
10 the Ohio State University. Prior to coming to work at Piedmont in 2002,
11 I was Vice President for Business Development at CT Communications, a
12 diversified telecommunications provider headquartered in Concord,
13 North Carolina. Prior to that, I served as Senior Vice President for
14 Marketing and Gas Supply for Public Service Company of North
15 Carolina, Inc. a local natural gas distribution company headquartered in
16 Gastonia, North Carolina.

17 **Q. Please describe the scope of your present responsibilities for**
18 **Piedmont?**

19 A. I am the corporate officer responsible for Piedmont's commercial
20 operations, which includes gas supply, transportation, sales and
21 marketing. I am also responsible for the Company's state and federal
22 regulatory matters.

23 **Q. Have you previously testified before this Commission or any other**
24 **regulatory authority?**

1 A. I have not testified before this Commission before but I have testified on
2 several prior occasions before the North Carolina Utilities Commission. I
3 have also been closely involved with regulatory matters before this
4 Commission on behalf of Piedmont for the last several years.

5 **Q. What is the purpose of your testimony in this proceeding?**

6 A. The purpose of my testimony is to discuss Piedmont's position on Duke
7 Energy Carolinas, LLC (Duke's) Save-A-Watt program proposals
8 (Program) and some concerns we have with those proposals. In my
9 testimony, I propose principles for the evaluation of all utility sponsored
10 energy efficiency programs designed to ensure that such programs are in
11 the public interest. I also identify and discuss several aspects of Duke's
12 proposed Program that are not in the public interest as that Program is
13 currently designed. Specifically, my testimony addresses the following
14 issues raised by Duke's Program proposals: (1) the relative efficiency
15 and greenhouse gas (GHG) emissions advantages of natural gas compared
16 to electricity when measured on a comprehensive, multi-fuel, and total
17 fuel cycle basis in many applications; (2) the potential long term cost
18 impacts on South Carolina consumers likely to arise from a decision to
19 actively promote the use of electricity and/or the installation of electric
20 appliances through up-front economic incentives as proposed by Duke
21 when there are more efficient, lower cost options available; and (3) the
22 negative effects on competition between natural gas and electricity in the
23 retail markets (primarily the space and water heating markets) that will
24 result from approval of Duke's energy efficiency programs as they are
25 currently proposed. Finally, I identify the specific aspects of Duke's

1 proposed energy efficiency programs to which we object and urge the
2 Commission to adopt Mr. Skains' suggested collaborative approach to
3 resolving the concerns with Duke's Program proposals identified in our
4 testimony.

5 **Q. Why does Piedmont have an interest in this proceeding?**

6 A. The provision of electric service by Duke competes, in a number of
7 applications, with the provision of natural gas service by Piedmont. This
8 means that consumers have a choice between natural gas and electricity
9 as a source of energy in many instances. In this proceeding, Duke is
10 asking the Commission to approve the payment of economic incentives to
11 consumers that will encourage those consumers either to become or to
12 remain electric customer rather than natural gas customers. With
13 approximately \$12 million a year committed to its proposed efficiency
14 programs, there is every reason to believe that Duke's programs could
15 significantly impact the markets where gas and electricity compete. As
16 such, Piedmont has a substantial and direct interest in how Duke's
17 programs are designed and will operate.

18 **Q. Do you have any general comments about Duke's Program?**

19 A. Yes. While I have concerns about a number of aspects of Duke's discrete
20 energy efficiency program proposals, as an overall statement, I believe
21 Duke's proactive attempt to promote the goal of efficient energy
22 consumption in South Carolina is commendable and that many of their
23 ideas and approaches to addressing the challenge of energy efficiency are
24 innovative and worthy of serious consideration by the Commission.

1 **Q. In Mr. Skains' testimony, he discusses Piedmont's views on the**
2 **overall policies that should govern this Commission's analysis of**
3 **energy efficiency in general and Duke's Save-A-Watt proposals in**
4 **particular. Do you agree with Mr. Skains on these matters?**

5 A. Yes. Piedmont strongly believes that in order to truly engage in a
6 meaningful and effective efficiency analysis, it is critical that energy
7 efficiency be analyzed on a comprehensive, multi-fuel and total fuel cycle
8 efficiency basis taking into consideration available competing fuel
9 sources. In other words, the analysis should take place in the context in
10 which energy consumption actually occurs, rather than under some
11 artificial "electric only" construct where only electricity serves as an
12 energy source and where efficiency is only measured at the point of
13 consumption.

14 **Q. How should the Commission evaluate incentive or efficiency program**
15 **proposals from public utilities, such as the efficiency programs**
16 **proposed as part of Duke's Program?**

17 A. Piedmont has developed four principles it believes should be used to
18 evaluate utility sponsored incentive programs in order to ensure they
19 serve the public interest. These principles are as follows:

- 20 1. Energy efficiency programs, especially those that are
21 proposed for competitive markets served by regulated natural gas and
22 electric utilities, should be analyzed on a comprehensive and multi-fuel
23 basis looking at reasonably available competing energy products and
24 services and the likely impacts of the proposed programs, including
25 impacts on load growth, competition, cost structures, avoided capital

1 investments, overall supply and demand, and customer comfort and
2 convenience.

3 2. Energy efficiency programs should be analyzed on a real
4 energy efficiency basis by taking into consideration the total fuel cycle
5 efficiency of the energy usage promoted, as well as that of competing
6 forms of energy.

7 3. Energy efficiency programs and utility rates should be
8 constructed in a manner designed to create incentives for consumers to
9 use energy wisely and for utilities to promote such usage.

10 4. Energy efficiency programs should promote the use,
11 among reasonably available alternatives, of the most efficient, lowest
12 emitting energy sources that lower overall costs to consumers.

13 Adoption of these principles will ensure that energy efficiency
14 proposals are properly evaluated, achieve their intended objectives, and
15 are in the public interest. These principles also ensure the examination of
16 a more complete set of relevant factors that should reasonably be
17 examined by the Commission in making its decision to approve or
18 disapprove efficiency or incentive plan proposals.

19 **Q. What is the risk if the Commission does not follow the evaluative**
20 **process outlined in these principles with respect to Duke's proposed**
21 **energy efficiency programs?**

22 **A.** As I explain in more detail below and as is discussed by Mr. Skains, an
23 "electric only" approach to the analysis of efficiency in the consumption
24 of energy – which is the approach urged by Duke in this proceeding – is
25 highly likely to lead to increased electric generation load through

1 displacement of natural gas, the unnecessary construction of additional
2 electric generation facilities (most likely fueled by natural gas), lower
3 overall energy efficiency, higher GHG emissions, and higher costs to both
4 electric and natural gas customers. These results are not consistent with
5 either the best interests of the citizens of South Carolina or the stated
6 goals of Duke's Save-A-Watt program. As such, that program should not
7 be approved in its present form. If Duke's stated objective is energy
8 efficiency, it is reasonable to expect that more than one energy source
9 should be considered in the analysis of its proposals.

10 **Q. Please explain why you believe that Duke's energy efficiency**
11 **program proposals should be analyzed on a comprehensive, multi-**
12 **fuel and total fuel cycle efficiency basis.**

13 **A.** In many applications, specifically including water and space heating, the
14 direct use of natural gas is more efficient on a total fuel cycle basis than
15 using that same gas to generate electricity to serve the same end use. As
16 such, it makes no sense to approve a program which purports to promote
17 reduced electric load and "energy" efficiency if the net result of that
18 program will be to increase electric load (through the displacement of
19 natural gas) and to reduce the overall efficiency of energy consumption
20 within South Carolina (by promoting less efficient electric consumption
21 when natural gas used for the same end use is more efficient).

22 **Q. Can you provide an example of what you are referring to?**

23 **A.** Yes. When the relative efficiency of natural gas supplied by Piedmont
24 and electricity supplied by Duke are measured in the context of the water
25 heating requirements of South Carolina customers, it is clear that natural

1 gas is substantially more efficient than electricity on a total fuel cycle
2 basis. Based on analysis conducted by Piedmont, the total fuel cycle
3 efficiency of water heated by natural gas is more than twice the
4 comparable efficiency of water heated through electricity in most
5 instances. As such, if viewed from a comprehensive energy efficiency
6 perspective, any incentive offered by Duke which would have the effect
7 of displacing natural gas water heating in this State, would reduce the
8 overall efficiency and increase the total levels of energy consumed within
9 South Carolina.

10 **Q. What if you examine relative efficiency from the perspective of**
11 **incremental electric capacity?**

12 **A.** As the Commission is aware, the vast majority of incremental electric
13 generation capacity in the last decade has been gas-fired turbine
14 generation. This is likely to remain the case for the near term future due
15 to the long lead times associated with new coal or nuclear baseload
16 construction. Based on our analysis, the relative total fuel cycle
17 efficiencies associated with simple cycle gas-fired turbine generation
18 equipment – which is the only type of gas-fired turbine generation
19 equipment currently in use by Duke – do not compare favorably with the
20 direct use of natural gas for space and water heating end uses. A total cost
21 analysis of combined cycle generation also does not compare favorably
22 with the direct use of natural gas. Comparing total efficiency and total
23 energy consumed, the direct use of natural gas has a distinct overall
24 advantage compared to electricity generated through a simple cycle plant.
25 Piedmont's studies also indicate that natural gas delivered by Piedmont

1 has a total fuel cycle efficiency and energy consumption advantage over
2 electricity in serving space and water heating load in most applications
3 that are reasonably likely to occur in South Carolina. As such, it does not
4 seem to make sense to promote the increased usage of electricity for these
5 applications, particularly when that increased usage is likely to displace
6 natural gas usage for the same load.

7 **Q. Is there any other advantage that natural gas has over electricity in**
8 **serving space and water heating needs in South Carolina?**

9 A. Yes. Based on our analysis, the direct use of natural gas to provide heat
10 and hot water in South Carolina produces lower GHG emissions per year
11 than the comparable use of electricity generated by Duke for those end-
12 uses.

13 **Q. What are the cost implications of Duke's proposed energy efficiency**
14 **programs for electric and natural gas customers?**

15 A. This is a very important point. To the extent that the economic incentives
16 Duke proposes to offer to consumers to install electric appliances under
17 its Save-A-Watt Program result in the displacement of natural gas, then
18 Duke will effectively add to its electric generation demand requirements.
19 At some point, this demand increase will require the construction of new
20 electric generation facilities. Assuming Duke utilizes the quickest and
21 lowest cost option available to serve this new load – gas-fired turbine
22 generation – the capital investment required to construct such facilities
23 would be substantially larger than the cost of serving that load with
24 natural gas directly. As an illustration of total cost and energy
25 consumption impacts, Piedmont estimates that if 50,000 customers use

1 electricity for space and water heating instead of using natural gas
2 directly, then Duke's generation requirements will be increased by
3 approximately 362.5 Megawatts. The cost of constructing simple cycle
4 generation facilities to serve this new load requirement will be
5 approximately \$215 million whereas the capital cost associated with
6 serving those same customers directly with natural gas will be
7 approximately \$115 million. On an annual basis, the source energy
8 required to serve the space and water heating needs of these customers is
9 approximately 5,450,000 MMBtus for the simple cycle facilities and
10 3,800,000 MMBtus for the direct utilization of natural gas. The source
11 energy required on a peak day for this load would be approximately
12 100,000 MMBtus for the simple cycle facilities and approximately 50,000
13 MMBtus for the direct application of natural gas. The costs associated
14 with the new simple cycle electric generation facility would, obviously,
15 be paid by electric customers. Further, the increased demand for natural
16 gas needed to supply any new turbine generation facilities would put
17 upward pressure on wholesale natural gas costs, thereby increasing costs
18 for both electric and natural gas customers. Ironically, if this new electric
19 load had not been captured from natural gas through the payment of
20 incentives approved by this Commission, then there would be a reduced
21 need (and maybe no need) for the new gas-fired electric generation
22 facilities and substantial associated savings for electric consumers would
23 result. In short, and paraphrasing Duke, the cheapest and most efficient
24 new power plant for serving energy needs in South Carolina in the future
25 may be natural gas.

1 **Q. What do you conclude from these facts?**

2 A. It is plainly not in the public interest to offer consumers economic
3 incentives to utilize electricity instead of natural gas when doing so will
4 result in lower overall energy efficiency, higher electric demand, the need
5 to construct additional and unnecessary electric generation facilities,
6 higher natural gas costs to both electric and natural gas customers
7 resulting in higher electric and natural gas rates, and increased GHG
8 emissions.

9 **Q. What would you say to the argument that Duke's Save-A-Watt**
10 **program is not designed to displace gas but to promote greater**
11 **electric efficiency?**

12 A. First, if that is the case, then Duke should state that plainly and agree to
13 modify its program proposals where they could negatively impact overall
14 energy efficiency. Second, I would say that the stated intent of the
15 program is less important than what it will actually achieve and in the
16 case of many of the proposed Save-A-Watt efficiency programs, every
17 installation of an electric heat pump or water heater that results from
18 payment of a Save-A-Watt incentive, will preempt and foreclose the use
19 of natural gas in that application for an extended period and will result in
20 increased electric demand.

21 **Q. Is it your position that the Commission in this proceeding should**
22 **resolve and rule on the detailed factual issues raised by questions**
23 **about relative total fuel cycle efficiencies, energy consumption and**
24 **GHG emissions raised in your testimony?**

1 A. No. My position is that our analyses indicate substantial cause for
2 concern with Duke's proposals, even indicating that Duke's Program may
3 have the exact opposite effect of its stated goal with respect to energy
4 efficiency, and that the Commission should require Duke to demonstrate,
5 in the context of specific program filings, that its energy efficiency
6 programs will actually serve to promote reduced energy consumption and
7 greater energy efficiency. In short, the Commission should require Duke
8 to prove that its program proposals truly promote energy efficiency and
9 reduce demand when they are filed with the Commission. It is not
10 possible to engage in that analysis in this proceeding because Duke has
11 provided no detail to its program proposals and the underlying data
12 needed to evaluate issues of relative efficiency, energy consumption, or
13 GHG emissions is not in the record.

14 **Q. Does Piedmont have concerns with Duke's Save-A-Watt program**
15 **proposals that are not related to efficiency or costs?**

16 A. Yes. We are also concerned about the potential for skewing the
17 competitive markets for natural gas and electric service in South Carolina
18 by Duke's proposal to spend upwards of \$12 million a year on incentive
19 programs. Duke's proposed programs are designed to influence
20 consumer behavior and we believe, based on our experience, that Duke's
21 programs could very well succeed in that regard given the amount of
22 money committed to the programs. A serious tilt toward the installation
23 of electric end use equipment will occur in South Carolina as Duke's
24 proposals are implemented and that tilt will be the direct result of
25 economic incentives approved by this Commission and funded by

1 ratepayers. This sort of activity inherently impedes competition and is
2 not in the public interest where, as I have discussed above, it is likely to
3 have negative effects on aggregate energy efficiency and GHG emissions
4 and to promote the need to build additional electric generation facilities.

5 **Q. How should the Commission view Piedmont's competitive concerns?**

6 A. We believe the Commission should avoid approving incentive or
7 efficiency programs that reduce market competition and promote the use
8 of one fuel source over another unless a compelling public interest
9 requires it.

10 **Q. Could you identify the specific Duke programs that you believe are**
11 **not in the public interest?**

12 A. Yes. Aspects of several of Duke's proposed programs have the potential
13 to displace either the existing or potential use of natural gas for space and
14 water heating purposes by providing for an affirmative economic
15 incentive promoting the installation of electric appliances. These
16 programs are Duke's Residential and Non-Residential \$martsaver
17 programs, as well as its Energy Savings and Low Income programs.
18 These programs all offer incentives to install electric equipment. While
19 the program descriptions offered by Duke are extremely vague, these
20 descriptions and the flexibility sought by Duke with respect to sculpting
21 these programs without additional Commission approval are broad
22 enough to allow the promotion of electric equipment in competitive
23 applications where natural gas is a viable and more efficient alternative.

24 **Q. Are there any other Save-A-Watt efficiency programs that concern**
25 **you?**

1 A. Piedmont has no objection to Duke's other proposed efficiency programs
2 provided they are not used to promote "electric only" efficiency or to
3 market electricity over natural gas. Duke's Energy Efficiency in Public
4 Schools Program, is an example of one such program that has the
5 potential to be used inappropriately to the extent it is aimed at marketing
6 electricity or where efficiency is taught on a single fuel/site basis. This
7 program should not be funded by ratepayers unless all bias in favor of
8 electricity is removed.

9 **Q. What should the Commission do with respect to the Save-A-Watt**
10 **programs you have identified as contrary to the public interest?**

11 A. The Commission should reject any aspect of those programs that would
12 permit the payment of an economic incentive, either directly or indirectly,
13 for the installation of electric appliances or the promotion of electricity
14 usage when there is a competitive and efficient natural gas option
15 available such as is the case with space heating and water heating.

16 **Q. Do you agree with Mr. Skains proposed collaborative?**

17 A. Yes. The relative efficiency, capital cost, and GHG emissions issues
18 raised in my testimony are very complex and have potentially significant
19 cost implications for electric and natural gas customers. Given this, we
20 believe that the best way to achieve optimal results on these matters is to
21 fully evaluate both electric and natural gas options before actions are
22 taken that are intended to promote "energy efficiency." As mentioned by
23 Mr. Skains in his testimony, Piedmont would both welcome and advocate
24 a collaborative process where Duke, the ORS, and Piedmont work

1 together to jointly develop programs that incent all parties to achieve both
2 energy efficiency and the lowest cost energy future for our customers.

3 **Q. Does this conclude your Direct testimony?**

4 **A. Yes.**

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the attached *Testimony of Frank Yoho on Behalf of Piedmont Natural Gas Company, Inc.* is being served this date via email and UPS Overnight (5 copies) upon:

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This the 17th day of January, 2008.

s/ James H. Jeffries IV
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